NGINEERING ROOM

ELECTRICITY on the FARM

The National Magazine of Rural Electrification

AUGUST, 1943

THIS MONTH—

Freezing Fruits and Vegetables
Use a Hose on Farm Gardens
A Hay Hoist Made of Scrap
Good Wiring Is Safe Wiring
Reminders About Silo Filling
Dishes for Dog Days
Beating the Heat
Kitchenette Sauer Kraut
Answers to Readers' Questions

AUG 6 1943
OREGON STATE COLLEGE

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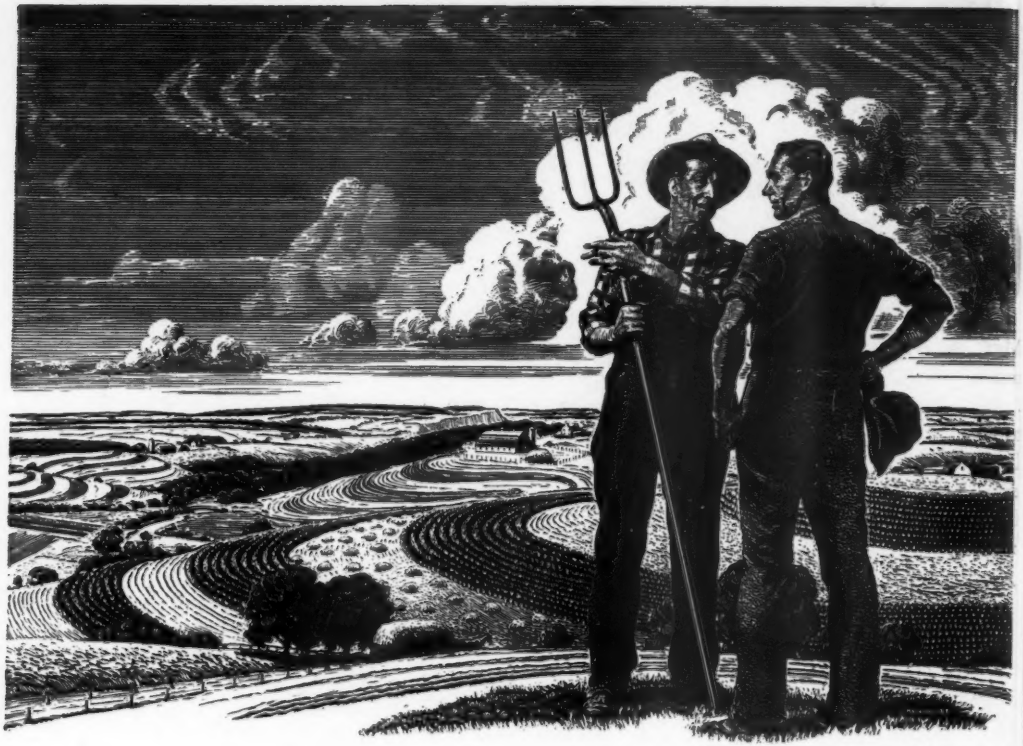

PLANNING ISN'T NEW

THE way a lot of people are talking these days, you'd think planning is something new.

But anybody who's ever run a farm or a factory knows that if you don't plan, you can't get the most out of what you have to work with.

To plan properly, the farmer has to know about crops, soils, seasons, tools, and stock; and the man operating a factory has to know about machines, markets, science, and engineering.

Yet for all this specialized knowledge which each of these activities requires, the managers of both farm and factory have much in common in their planning. They have the same problems—to mention a few—of employment and taxes, of costs and a fair profit, of setting aside reserves for a "rainy day."

And they have the same objective in their planning—to do everything they can for their country today, and, tomorrow, to make a fair living through greater service to their fellow Americans.

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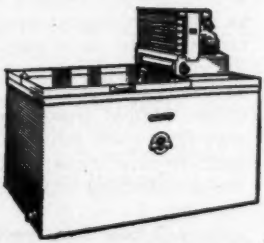

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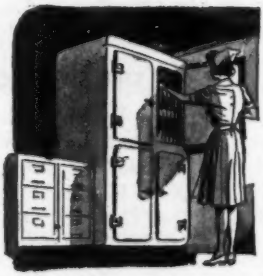

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INTERNATIONAL HARVESTER

Editor's Chat

WORSHIP ON A TRACTOR

It is late June as I write this on a train in Central Indiana. It is Sunday morning. The fields appear to have had much rain. The prospects for knee-high corn by the Fourth of July is not too good. A farmer is cultivating with his tractor. I wonder what he is thinking about. Sorry he has to work on Sunday? Glad he can help win the war right here on his own place? Pleased that he has a tractor to help him catch up with the cultivation? Wondering how son is making it down in Australia? Or, maybe he is thinking about the problems of the frantic parent bird over in the hedgerow whose baby has just fallen out of the nest. And then again, he might be in church listening to a sermon sitting right there on that jolting tractor seat. Yes, he could very well be. Sometimes it is even easier to be close to God when you are close to the soil than it is behind an ornate hat in a sleepy church.

THE LIGHT ON THE BATHROOM FACE

Once, long ago, I said on this page that I liked one good light over the mirror (or was it in the bathroom celing), about as well as two lights, one on either side of the mirror. That was before I had bi-focal lenses in my glasses and when I still painted my face with lather to shave. With the old straight razor, I could easily see when the soap "frosting" was scraped off. With the electric shaver, to which I am a convert, one needs to see the whiskers if he is to avoid leaving some of the elusive cusses hiding under his chin or in front of his ear. The best anti-whisker-hiding illumination I have seen was in a bathroom in a Chicago hotel. There was a one tube light above and one below the mirror. They put the "spot" on that ingrowing whisker on my Adam's apple. After that, I'll concede, ladies, that side lights might be best for rouge.

SIZZLING DEHYDRATORS

The subject of home dehydrators is sizzling. Many colleges, power companies, Government agencies and manufacturers designed small home dehydrators to help solve the food shortage problem. The War Production Board cooperating with the War Food Administration has allotted materials for 100,000 factory-made home dehydrators this year. Commercial dehydration interests, with $100,000,000 reputed to be invested in the dehydration industry have sputtered into print over the "damned fool 'home dehydrator' program" foisted upon an unsuspecting public. You see, that 100,000 allotment takes some materials away from the commercial interests; but what is still more serious to them, they think the poor products which will come out of home dehydrators may spoil the home market so they will have no outlet when the Army and Lend-Lease no longer takes their output. There is some logic in their reasoning.

Dehydration of foods is not just drying the water out of them. It involves precooking, slicing, perhaps sulphuring, and then dehydrating at the correct varying temperatures and air movements to produce a product which will retain its palatability, appetizing appearance, vitamins, minerals, etc. It is no more difficult to learn than good canning but fewer people know how, and attention *must* be given to details of handling each product to get good results. Some of the factory-made small home dehydrators which will sell for $25 to $60 will do just about as good a job as large commercial equipment IF the operator uses the same care and intelligence as the commercial operator. The same may be said of home-made units. Cheap, improvised driers without temperature and air controls may do a good job on some foods, but they will require closer attention, shifting of trays, watching of temperatures and other nursing.

It will take less time to learn to do the job right than will be wasted on one batch that spoils.

George Kable

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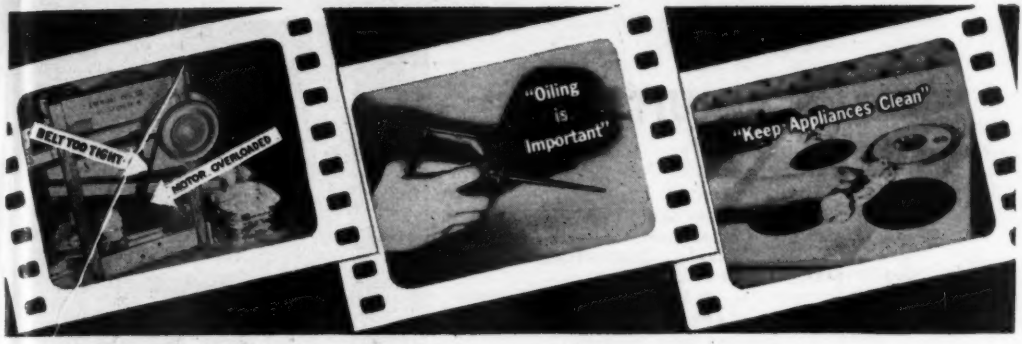

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Gives many helpful hints on how to make household electrical appliances *give better service for the duration!*

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FREEZING FRUITS AND VEGETABLES

Procedures to Be Observed in Freezing. Single and Two Compartment Freezers and Ice-Cream Cabinets. Instructions for Preparing Foods for Freezing.

By **CLARENCE W. DuBOIS**
Louisiana State University
Experiment Station

Front opening farm freezing cabinet. The top shelf has refrigerant coils and a fan for quicker freezing.

DURING the past few years many farm freezing and storage cabinets have been added to farm equipment. Ice cream holding cabinets, both new and used, have also been purchased in considerable numbers. In using this equipment there are a few facts users should know concerning the operation to prevent losses at a time when food is so important.

Don't Overload Freezers

In two compartment cabinets, with one compartment for freezing and the other for storage, caution should be used in packing the freezing compartment full of warm products to be frozen. Most of these freezers can handle only about 50 pounds of average-sized packages in a ten to twelve hour period.

With side-opening cabinets having cold plates used as shelves, warm foods should be placed on a plate not being used for storing products previously frozen. Such an arrangement will permit freezing of foods without appreciably affecting the foods in storage.

In using an ice cream cabinet or some single compartment cabinets, one fact must be borne in mind. These cabinets are not especially designed to freeze foods. However, food may be satisfactorily frozen and stored provided a small enough load is handled at one time and the foods to be frozen are not packed in the cabinet on top of foods already frozen. When foods are to be frozen in this type of cabinet, the warm foods should be placed at the bottom and against the wall of the cabinet at one end away from the frozen foods. If the foods are not frozen in this manner, some products are apt to spoil before they become frozen or cooled to the point where bacterial growth is retarded.

Uniform temperature of storage is necessary to insure the flavor of foods, to keep them sweet and palatable and to have them retain their juices when thawed and cooked. Foods to be kept in first class condition for a period longer than four months should be kept at 0° F or below.

Preparation of Vegetables for Freezing

Young and tender vegetables should be selected for freezing to obtain the best product. Only those vegetables which are cooked before being consumed should be frozen. Products like tomatoes, melons, lettuce and celery are not pleasing when frozen. All vegetables must be scalded in boiling water or blanched in steam then cooled thoroughly before being frozen if they are to be palatable when removed from storage. The length of time for scalding varies with each different vegetable.

Scalding Equipment. Equipment for scalding vegetables may be simple and is usually available in every household. A large kettle with a flat bottom, holding from 3 to 4 gallons of water will be useful for heating water. A colander or small mesh frying

Table Showing Preparation and Scalding Time in Boiling Water* for Vegetables to Be Frozen

Vegetable	How to Prepare	Scalding Time
Asparagus	Cut into lengths to fit package or in 1-inch lengths	Small spears 3½ min. Medium spears 4 " Large spears 4½ "
Beans, green	Pick when filled but before becoming dry	1 "
Beans, Lima	Pick when pods are well filled but when seeds are green	Large seeds 2 " Small seeds 1 "
Beans, snap	Use young tender beans. Snap ends and cut into 1-inch lengths	2½ "
Beans, Soy	Scald pods containing beans to simplify shelling. Shell	Scald to remove seeds 2½ "
Beets	Remove tops and roots. Mature beets should be cooked, then peeled and sliced	Under 1½ in. diam. 2½ " Over 1½ in. diam.—Cook until tender
Beet greens	Use young tender beet plants. Remove coarse, undesirable leaves	2 min.
Broccoli	Select compact heads (without blooms), cut in 1-in. pieces	Small 3 " Large 5 "
Brussel sprouts	Select dark green compact heads	Medium 4 " Large 5 "
Carrots	Select young tender carrots, cut in ¼-in. slices	3 "
Cauliflower	Choose solid white heads, cut in 1-in. thick pieces	Small pieces 3 min. Medium pieces 4 "
Chinese cabbage	Cut crosswise of head to 1-in. thick slices	1½ "†
Egg plant	Peel, slice 1/3 in. thick	4 "
Kale	Select young tender plants, use leaves only	1½ "
Kohlrabi	Choose young roots, peel and dice ½-in. cubes	1 "
Mushrooms	Choose small, tight caps; cut off most of stems	Small 3 "† Large 4-5 "†
Mustard	Discard stalk and use only tender leaves	1 "
New Zealand Spinach	Young tender leaves only	1½ "
Peas	Shell, and discard hard starchy peas	1 "
Pumpkin	Peel, cut, cook in pressure cooker or in covered kettle on rack over water	Cook until done
Rhubarb	Remove leaves, cut stalk in 1-in. lengths	1½ min.
Spinach	Use tender leaves	2½ "
Squash, summer	Use young squash, slice ½ in. thick	3½ "
Squash, winter	Peel and cut in pieces	Cook until done
Sweet corn on cob	Husk and eliminate over- and under-mature ears, trim tips	Small ears 6½ " Medium ears 8½ " Large ears 10½ "
Sweet corn, cut	Choose corn before starchy and hard but not soft. Scald corn on cob, then cut corn from cob	3 "
Swiss chard	Select tender leaves	2 "
Turnip greens	Select young, tender leaves only	1 "
Turnip roots	Choose tender roots, peel and dice ½-in. cubes	1½ "

*After scalding for the time indicated, vegetables should be cooled immediately by immersing in cold running water.

†Cool in 2 percent citric acid solution to prevent discoloration.

basket will serve adequately for scalding vegetables. Not more than one pound of vegetables should be placed in 2 gallons of boiling water and it is important that the water be kept boiling with high heat. Agitate during scalding to insure heating all the vegetables. After scalding, cool quickly in running cold water to 60°.

Packing for Freezing. Vegetables are usually packed "dry," that is after they have been drained they are packed in containers without liquid.

Preparation of Fruits

Unlike vegetables, fruits are not heated before freezing. Peaches may be scalded to remove the skins. All fruits to be frozen are prepared as for the table. The freshness of fruits is preserved by mixing the fruits with sugar or by covering them in the container with sugar syrup.

Containers

The most satisfactory containers are those adapted to low temperature conditions. Heavily waxed or special low-temperature Cellophone or parchment-lined containers should be used. Glass jars may be used but they have these serious disadvantages: (1) shape, (2) difficulty in stacking in cabinet or locker, and (3) breaking as a result of expansion of liquid during freezing. The hazard of breakage due to expansion may be reduced if jars are only filled to ¾ to 1 inch from the shoulder of the glass jar.

EDITOR'S NOTE. Research work indicates that a lesser amount of vitamins and nutrients are lost in steam blanching than in scalding in boiling water. Also, some of the new bulletins on dehydration recommend steam blanching in preference to water blanching. Because of this we have asked Prof. DuBois for his opinion in the matter. He says it is true that steam blanching, *properly done*, would be better in some cases. One must do that steam blanching, however, with ample quantities of *live steam* at atmospheric pressure in a closed steamer. If you have good steaming equipment, use it. Instructions are given for scalding because he be-

Table Showing Preparation and Packing Method for Fruits to Be Frozen

Fruit	How to Prepare	Packing Method
Blackberries, Dewberries Purple- Red- Black-Raspberries	Clean, wash in cold water	Cover with 50% to 65% syrup or mix thoroughly with sugar —1 lb. sugar to 4 lb. berries
Blueberries	Stem, crush	1 lb. sugar: 5 lb. fruit
Cherries, sweet	Wash, pit	Cover with 50% syrup
Cherries, sour	Wash, pit	1 lb. sugar: 3 lb. fruit. Mix until dissolved, fill containers
Cranberries	Stem, sort, wash	Pack dry—no sugar
Currants, gooseberries	Stem, wash	1 lb. sugar: 3 lb. fruit (crush fruit)
Peaches (yellow)	Peel by dipping in boiling water, ½ to 1 min., pit and slice	Cover with 50% to 60% syrup
Plums, prunes	Wash, pit and quarter	Cover with 50% to 60% syrup
Strawberries (sliced)	Wash in cold water, hull slice, ¼ in. thick	1 lb. sugar: 4 lb. fruit. Mix until sugar is dissolved
Strawberries (whole)	Wash in cold water, hull	Cover with 50% to 60% syrup

To make syrup: 50%—1 lb. sugar to 1 pint water
55%—1 lb. 5 oz. sugar to 1 pint water
60%—1 lb. 10 oz. sugar to 1 pint water
1 cup sugar weighs approximately ½ lb.

lieves more homes have equipment for doing it that way,—and a good job of scalding is better than a poor job of steaming. Do not keep in cold water any longer than necessary to cool vegetables after blanching as long washing carries away some food value.

Electric Milker Saves the Cows

By HOWARD CLAPPER

FROM many important dairying sections of the country come reports of milk cows going to slaughter markets, of dairy farmers curtailing production, simply because necessary labor is not available. While this situation constitutes a serious problem, imagine our plight if the present war had come upon us before the widespread extension of electric service to millions of farm homes. One good example of the way electricity is bridging the gap in the present farm labor shortage is to be found on the Elzie Heidlebaugh farm near Lexington, Ohio.

War Changed Situation

During the past few years Mr. Heidlebaugh has built up a sizeable (32 cow) dairy herd. His farm prospered, labor was plentiful, the milk checks from the dairy in Mansfield came regularly, and soil fertility was on the upgrade. Then overnight the picture changed, Jap bombs fell on Pearl Harbor, and a son and the hired hand were called in the draft.

Perhaps up to this time the new electric line past the Heidlebaugh farm had been considered a sort of luxury, but now its availability assumed importance. With the installation of two milking machines, electricity was also called into service, and it is now Mr. Heidlebaugh's "best wired hand."

Mr. Heidlebaugh and the milker that saved him a man and $32.80 per month.

Milking Time Cut in Half

Previously it had taken two men, each working four hours a day to complete the daily milkings. The electric milkers have now cut the milking time to less than half the time previously required, thus saving 120 or more man hours per month, and the job is being done. These cows aren't going to slaughter markets.

In addition to saving labor, there is also a very definite saving in dollars and cents. At the low figure of 30c per hour, the 120 hours saved equals $36.00. A test meter installed on one of the milking units showed a current consumption of two kilowatt hours per cow per month. With electricity at five cents per kilowatt this amounts to 10c per cow, or $3.20 per month for the entire herd.

On this investment in the two milkers, Mr. Heidlebaugh is realizing a monthly dividend of $32.80 and more important, by converting electricity from a luxury to a production tool he is contributing his full share toward winning the battle of food production.

Ed Mitchell, genial farm question and answer man over radio station WGY says when you milk so much that you have to use one hand to make the other one let go of the teat, it's time to get a milking machine.

Of the world petroleum production in 1942, the United States produced 66%, Russia nearly 10%, Venezuela 6.6%. The United Nations, together produced 94%, the Axis Powers only 6%.

Safety Hint

Keep a pair of goggles or sun glasses handy at the tool grinder —and use them. Metal particles embedded in the eyeball can cause a lot of trouble. Imagine trying to do your job with only one eye! Be careful.—*W. C. Krueger.*

Use a Hose on Farm Gardens

THE rainfall in many sections of the country was ample this spring and gardens have grown well. There is seldom a season, however, when there are not some dry spells when gardens suffer. Water is almost as important as the soil in producing a garden. It is more effective than fertilizers in increasing yields, although the two work best together. When that dry spell comes this summer, use your hose.

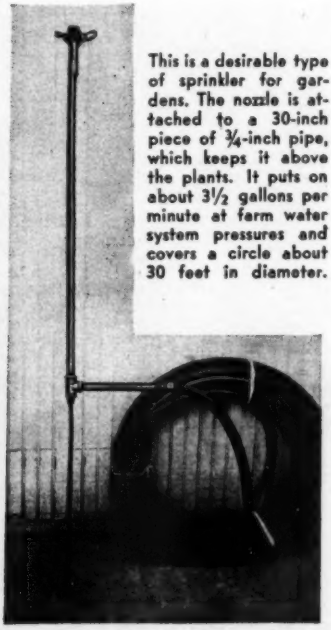
It is not necessary to have a special ditch system or special irrigating equipment to apply water to a garden. They would help in large gardens, but a hose and lawn sprinkler can be made to do the job of improving both the quality and quantity of produce. Here is a place where your farm water system will pay dividends in crops as well as in convenience.

Most farm water systems have a capacity of about 250 gallons per hour. This is four gallons per minute. In order to maintain pressure in your tank so water can be used in the house and elsewhere, it will be necessary to limit your sprinkling to something less than the full capacity of your pump. If you cannot draw water in the house, you will just have to throttle down the sprinkler somewhat and keep it running longer.

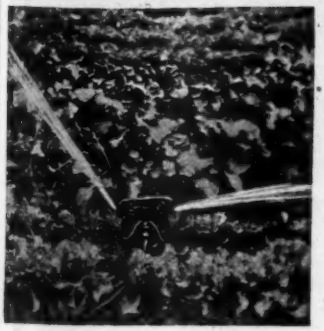
How Much Water?

The amount of water that will be delivered by your sprinkler will depend on the pressure in the tank, the length of pipe and hose used, its size, and the design of the sprinkler. The ordinary hose nozzle shown in the picture when used on a six-year-old 50-foot length of ⅝-inch garden hose delivered about 2¼ gallons per minute in a fine spray. Adjusted for a coarse spray, it threw 3 gallons per minute. The rotating sprinkler discharging a coarse stream puts out between 4½ and 5 gallons per minute. This low type sprinkler has adjustable nozzles for coarse or fine spray which regulate both the amount of water discharged and the area covered.

The low rotating sprinkler shown in the illustration was discharging about 4½ to 5 gallons per minute through the same hose used with the spray nozzle. The water pressure was about 40 pounds per square inch. If this sprinkler is nozzled down to 3½ gallons per minute, it will cover a circle about 30 feet in diameter and would have to be kept in one spot for about two and a half hours to put on a depth of one inch of water. This is just some indication of how fast water is put on by a sprinkler. It is not possible to give any rule for figuring it because no two sprinklers are exactly the same, nor are the conditions under which they are used. The best way to tell how much water you are putting on is to place tin cans under the spray and observe how much water has fallen into them.



This is a desirable type of sprinkler for gardens. The nozzle is attached to a 30-inch piece of ¾-inch pipe, which keeps it above the plants. It puts on about 3½ gallons per minute at farm water system pressures and covers a circle about 30 feet in diameter.



Upper: This common hose nozzle is spraying about 2¼ gallons per minute. The hose holder is improvised from an old flower stand and a piece of soft wire to hold the nozzle in place. A serviceable one can be made of rods, wire or stakes. **Lower:** A lawn sprinkler with a sprinkling capacity up to about five gallons per minute. The nozzles are adjustable for fineness of spray and speed of rotation. It will do a better job if raised on a box or frame.

Deep Watering for Deep Roots

Deep rooted plants will stand drought better than shallow rooted ones. Frequent shallow irrigations encourage the roots to stay near the surface. Less frequent, deeper irrigations promote deep rooting. The desirable depth of irrigation will depend upon the root system of the plants. The moisture should go below the roots. Here again, the best way to find out how deep the water is penetrating the soil is to dig down and see. There is much difference in soils. Once you know your own soil, you will soon learn how long the sprinkler must be kept running to supply the desired moisture.

It takes about 65 gallons of water to cover an area 10 feet square one inch deep, or about

. . . . . (More on page 22)

A Hay Hoist Made of Scrap

By **RALPH J. BUGBEE**
Central Vermont Public Service Corp.,
Rutland, Vt.

IF we had some ham we would have some ham and eggs—if we had any eggs. That was about the situation this year in haying season. Some farmers have access to a motor to operate a hay hoist, but they can't get a hoist because dealers have only a very few for sale. Some who might get a hoist found the price considerably advanced and the matter of power a perplexing one. Rope also is another serious problem for the farmer who is installing a hoist for the first time.

Problem Not Hopeless

The problem, however, is not entirely hopeless. In our part of the country there are comparatively few farms where hay is still pitched off by hand. Most farmers have a mechanical fork of some kind, but few have mechanical power for operating it. Old Dobbin or the family car is the common source of power. These are all right but are wasteful of either time, labor, or essential gas and rubber.

Some suggestions may be helpful in putting up the last cutting of alfalfa, or soy-bean hay; or in giving you an idea for next year.

Whatever source of power is used the man on the load usually has to pull back the fork after the load has been dumped. An easy working outfit will be appreciated. Have as few pulleys as possible and use large diameter pulley wheels and see that they are well oiled. Also, be sure that the rope does not bind or scrape on any timber and that it runs free through the pulley block. Also, be sure that the rope is free from twists and kinks. If these are present, it will pay to take the rope down, hitch a horse to one end and drag it through a field or beside the road (not on a paved road) for half a mile or so. This should always be done before a new rope is put up.

Electric power is ideal for operating the hoist because it is so easy to control, has no fire hazard, has overload capacity, and can be located inside the barn at a point where the least power will be needed. Last summer I measured the power requirements on several well installed hoists and the highest peak load I found was 12 amperes which is the equivalent of about 2 horse power. In all cases this peak came when the loaded fork was being pulled from the load. After that the horse power requirement dropped about in half. I have seen many hoists equipped with two and three horse power motors and last year installed one with a 2 horse power motor for one of our patrons which would take all we could possibly get on the fork without any effort at all. Another of our farmers operated a home-made hoist last year with a ¼ horsepower motor. The lift was a little slow, but even so was faster and easier than by man-power. This winter he used it to lift silage from the pit which was an unusually deep one below the dairy stable floor.

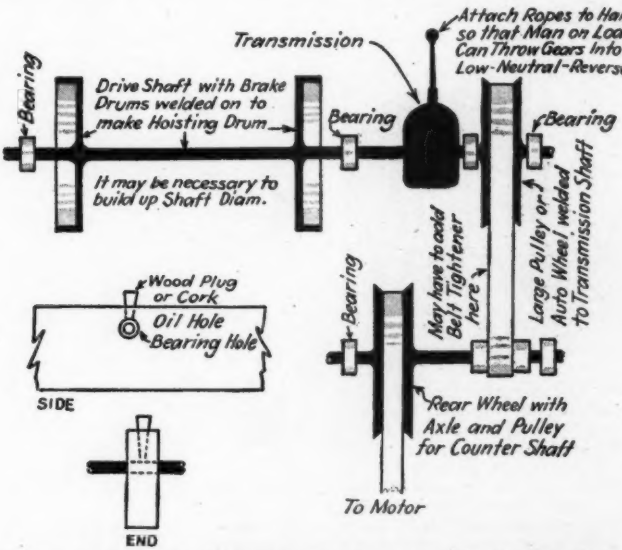

Attach Ropes to Handle so that Man on Load Can Throw Gears Into Low-Neutral-Reverse
Transmission
Bearing
Drive Shaft with Brake Drums welded on to make Hoisting Drum
Bearing
Bearing
It may be necessary to build up Shaft Diam.
Large Pulley or Auto Wheel welded to Transmission Shaft
May have to add Belt Tightener here
Bearing
Wood Plug or Cork
Oil Hole
Bearing Hole
SIDE
Rear Wheel with Axle and Pulley for Counter Shaft
To Motor
END

Diagram of hoist made from old automobile parts. The bearing blocks at bottom left are of hardwood. It is better to build up the drum to at least four inches in diameter.

Use Your Ingenuity

The accompanying plans are only suggestive. Parts available locally and the ingenuity of the maker will have to be used to the full. Three car transmission ratios are given. Most common makes of cars are about the same as these and have not changed much since 1935-36. In our opinion, Dodge and Chrysler transmissions seem best suited to hay hoist work because of their long engine side shaft and the emergency brake pulley on the drive shaft side.

To get a V belt drive, a PD-1A application form will have to be made out and sent through the State WPB office for approval.

The following table gives data on a well-known factory-built hoist for reference. Electric motor drive.

Large Pulley Diameter	Large Pulley R.P.M.	Main Drum R.P.M.
24	210	45
24	290	61
24	360	76
24	430	94
20	250	53
20	350	74
20	430	94

The power requirement increases about 4 times from the

slowest to the highest speed.

The following are the transmission gear ratios of the more common cars:

Make	Chevrolet	Ford	Dodge-Chrysler Through 1939	1940 on
Low	2.94 to 1	2.82 to 1	2.57 to 1	3.3 to 1
Second	1.68 to 1	1.604 to 1	1.55 to 1	1.78 to 1
High	1 to 1	1 to 1	1 to 1	1 to 1
Reverse	2.94 to 1	2.82 to 1	3.48 to 1	4.3 to 1

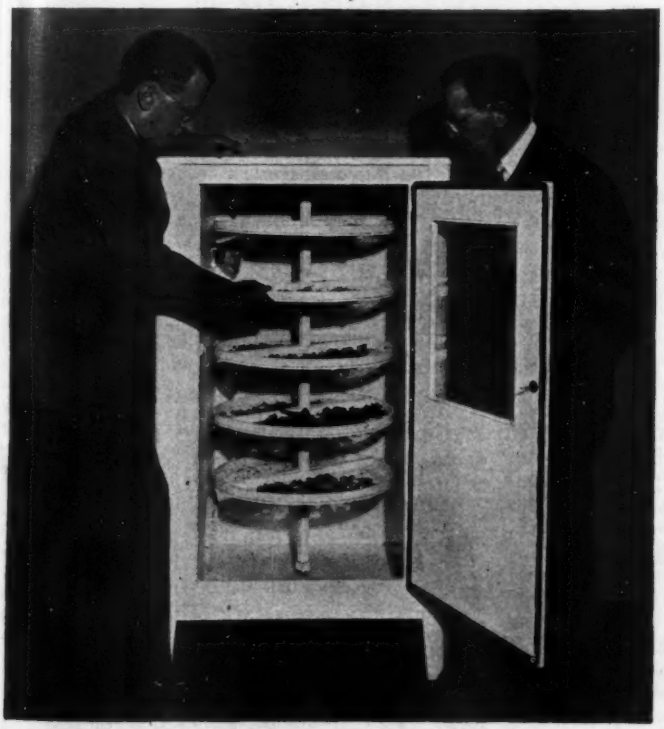
It will be necessary to figure pulley sizes and speeds to get proper results. This is how to do it:

The rpm of the driving pulley times its diameter equals the R.P.M. of the driven pulley times its diameter.

Since 3 of these factors are always known, it is easy to get the fourth. Practically all motors suitable and available for hoist work operation have a rating of 1725 and 1750 rpm.

The frame of the hoist should be of good strong timbers as the pull will be considerable when 600 to 1,000 pounds of hay is lifted at one time. Hard wood will make good bearings. A good transmission should not cost more than $10 to $15 and will be the most expensive part of the equipment. A 1½ or 2 hp motor is recommended.

EDITOR'S NOTE—Recent WPB releases indicate also that factory-built hay hoists will be available again next year. See quota on inside of back cover.



Vice-President Wallace's New Dehydrator. The dehydrator is icebox size, and was a gift to the vice-president from A. J. Stephens, a Kansas City, Mo., inventor. The unit has rotating shelves with electric rays applied on one size of each turning shelf. One motor operates the central shaft, another an air circulating fan. Dehydration is complete in eight hours. The shelves are removable. Stephens is shown on the left explaining the device to J. G. Suor, of the War Production Board.

Some Milk "Too Hot" To Handle

One of my most useful stories is that old one of the customer leaping frantically from the barber's chair when the barber applied too hot a towel to his tender face, and demanding an explanation—to which the barber replied that it was too hot for him to hold.

Now there are times, and there are some commodities that we pass along as quickly as possible and let someone else hold the bag, perhaps a moon-blind or balky horse; a cow with a periodic garget; a cranky car or a questionable coin would illustrate the point. "Too Hot to Handle" certainly applies also to milk that is warm enough for bacteria to find an agreeable home.

These little organisms, you know, do very nicely in milk as a culture medium unless that milk is pasteurized with heat or chilled down to around 50 or 55 degrees Fahrenheit; and they do not have to thrive very long to spoil the milk for ordinary market use.

Very few dairymen are equipped to, or want to take on the job of pasteurizing, but all of them have to cool their milk, and it is one of the most important parts of the dairy business. It is one of the principal jobs done by the "Electric Hired Man."

Right now, milk is a munition of war, and a very important one; so we can't afford to take any chances on bacteria sabbotaging any of it, and prompt and efficient cooling is one of the ways to prevent it.

That is why OPA regulations have been eased to permit the manufacture and distribution of milk coolers when many other things were kept on the restricted list, and why the cooling of milk is one of the main factors considered in extending electric service lines.

Condensed from a broadcast by
ED. W. MITCHELL,
WGY Farm Adviser.

Tourist—My what a beautiful sunset.

Native—Yeh, not bad for a little place like this.

YES, DARN IT!

I've just been reading the results of a survey of the use of electricity on farms in one of the very good agricultural counties in Oregon. *Five per cent* of the farms used a lot of electricity to help them in their *farm production* activities. *Ninety-five per cent* used electricity freely *in the house* but for very few productive jobs on the farm. Yes, darn it, I'm afraid that is true in a lot of other counties, too.

What Is Wrong?

Now you know and I know that many farmers are as tickled with their money making uses of electricity as they would be with a little producing gold mine. They cool milk for 20 per cent of what it would cost with ice; they get winter eggs when the price is high; they milk cows without that extra hired man; they grow plants in a hotbed with controlled heat. They have told us so, many times, in letters we have published in ELECTRICITY ON THE FARM. There are a hundred productive uses for electricity on the farm. But there may be some good reasons why some of you do not use them. We'd like to know those reasons,—whatever they are. Won't you write and tell us.

Make a Suggestion

Then we would like to know something else, too. Have you ever thought of any piece of equipment,—either electric equipment or electrically operated,—that would help you in your work if it was available? Or has this war emergency with its shortage of labor made you wish for some piece of equipment that you have never heard of but that would do a job for you if you had it? Electricity can produce a lot of forms of heat, light, power, radio communication, and some in between things like remote and automatic control of machines, welding arcs, jolts on an electric fence, electric eyes for grading and timing and burglar alarms.

The best source of ideas for new equipment or changes and improvements in equipment, is often the farmer himself. Farmers, for instance, originated the electric fence and the fan type and lamp heated brooders.

We do not want to make a contest out of this. We think you are as much interested in having someone go to work on farm equipment needs as we are. There are going to be a lot of factories wanting something to make when this war is over. This is a good time to be thinking about it.

We'll Make a Bargain

We would like to make this bargain with our readers. For every suggestion you send us which we think has enough merit to pass along to others, we will send you $1 worth of War Stamps for your trouble. To the person sending the suggestion we judge to be most valuable, we will send $10 in War Stamps. Since this is a quest for ideas and not a contest, *anyone* may send a suggestion or as many as he chooses. We must be the judges of their value and all of the suggestions will be ours to pass along or publish. On our side of the bargain we will also agree to print the suggestions having possibilities and pass them along to college research laboratories, power company rural departments and manufacturers where we think there is the best possibility of getting some action. We may publish some of them in ELECTRICITY ON THE FARM.

Will you work with us? It is for a better and happier and a more prosperous farm life and industry when the war is over.

The two subjects we want suggestions on are:

1. **WHAT NEW ELECTRICAL DEVICE, EQUIPMENT OR PROCESS WOULD HELP YOU IN YOUR PRODUCTION PROGRAM?**
2. **WHAT IS WRONG WITH EQUIPMENT THAT HAS BEEN AVAILABLE THAT KEEPS FARMERS FROM USING IT?**

Send your letters to Editor, ELECTRICITY ON THE FARM, 24 W. 40th St., New York 18, N. Y.

Mark SUGGESTIONS at the top of your letter.

The sooner you send your suggestions, the better. We will start sending them out right away. The War Stamps will be sent for suggestions which are on our desk before October 1, 1943.

GEO. W. KABLE, Editor.

Good Wiring is Safe

Some Wiring Is Bad. Some May Get Bad if Not Properly Installed. Here Is an Example with Suggestions for Avoiding It.

ELECTRICITY is one of the safest things most of us deal with. There are many more accidents from falling over things, being hurt by livestock and from being careless in the handling of tools and machinery than from electric shock. It is possible to be injured by electricity, however, or to lose livestock or set fires if one is careless or negligent about wiring or gets a bad job of wiring.

In order to help you get away from even the occasional loss which does occur with electricity, we are going to print a series of articles telling of some losses which did occur, why they happened and what could have been done to prevent them.

This is the first one. It occurred on a farm in Wisconsin. The wiring had been installed for about thirteen years. Wires in the barn and milkhouse were installed in steel conduit, which is required in some places, and is supposed to be one of the safest systems, and is the most costly. The service entrance was in the barn and conduit carried wires from the barn to a pump in the milk house. In the other direction, conduit and flexible metal sheathed cable ran to the milking machine motor.

The milker had been installed for twelve years. Then one day without warning four cows were killed while drinking from steel water bowls. An electrician was called and he finally found the trouble. The conduit between the barn and milk house had sagged, and in thirteen years of use the accumulation of moisture at the low point had rotted the insulation off the wires and caused a direct short circuit through the metal of the conduit. The live current carried back to the metal housing of the service entrance, on through the conduit and flexible metal sheathed cable to the frame of the milking machine, then through the milker pipe, clamp, water pipe, water bowl, the cows and into the ground through the wet floor. The cows were killed.

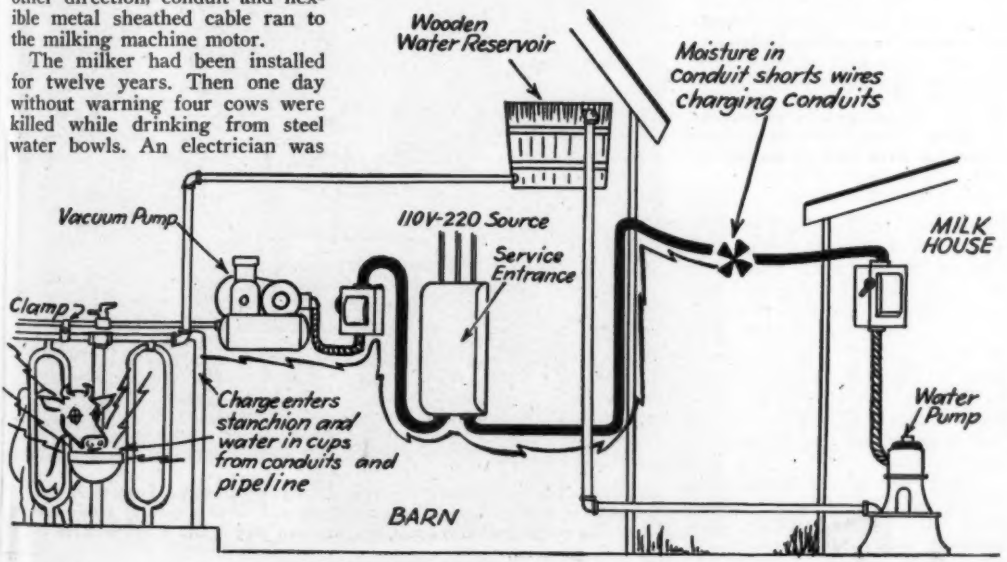
There are several things to be learned from this accident. In the first place animals are very susceptible to electric shock. They are sometimes killed by rather small currents, so it behooves you not to have any leakage or short circuits where they can pass through livestock. (Electric fences use very small currents, but at high enough voltage and in periodic jolts so it will sting, but not injure the livestock, that comes in contact with it.)

A good connection to ground at the service entrance would probably have carried the leakage current away without injuring the cows. Electricity follows the path of least resistance. There was no ground connection where it could go.

Wiring in conduit is not always safe, especially in barns and other damp and corrosive places. The conduit does not need to leak to get moisture in it. Condensation inside the pipe will cause it. Most people who know farm conditions now advise against the use of metal conduit in barns.

Note that the water tank which supplies the drinking cups is of wood. Had this tank been of metal, the current could just as easily have followed through the pump, water pipe and tank to the drinking cups as through the milking machine.

To avoid troubles like this, be sure you have good low resistance grounds at entrances to buildings so any stray currents will find a better path to ground than through your cows. Watch out for sagging and broken conduit or conduit which may be rusted off at the screw threads. If your wiring is old, or you get any tingling sensation from touching pipes or conduits, or if you suspect a poor job, you may save by having it inspected by a competent electrician or wiring inspector.



Salisbury Electrified Granary a Labor Saver

By GEO. R. HARRISON

Cleaning seed is a simple and easy matter on the W. W. Salisbury farm, LaPorte county, Indiana, since Mr. Salisbury put the one-fourth horse motor on his Clipper fanning mill. There is no more hand turning and the motor saves a man at seed cleaning time. "We have only to plug in to get going," said Mr. Salisbury. "Because the neighboors have electricity, too, they like to borrow this mill. They merely take it away and plug in on their own circuits."

This shows the bucket elevator with the motor drive. The returning buckets can be seen at the back of the elevator chute. The view also shows the motor switch out of the way of stock and children. It also contains an overload protection device. The long lever throws the truck hoist in and out of gear.

Better yet is the building in which the little Clipper mill is kept. Mr. Salisbury had it constructed, not only for the better saving of grain, but as a means of saving labor to meet the labor shortage problem.

The granary holds 4,500 bushels of small grain and 6,500 bushels of ear corn. All grains are elevated into the upper bins or side cribs by means of the bucket elevator, powered by a three horse power motor. The same motor lifts the front ends of the trucks for dumping into the pit as the loads come in from the fields.

"There is no more trouble from small grain heating in the bins," explained Mr. Salisbury, "for any grain that starts to heat is dropped down out of the bin into the elevator and hoisted back up into another bin. Moving it cools it and removes some of the moisture."

Mr. Salisbury owns and operates several hundred acres, and is also a cattle feeder. For this feeding the electrically operated mechanism in the building is now absolutely indispensable, he says.

Upper: This is the Salisbury electrically equipped granary. Lower: A quarter horsepower motor mounted on the fanning mill saves a man at seed cleaning time. The neighbors like the mill, too, and can plug it into a convenience outlet in their granaries.

I'm Proud I Am a Farmer

Radio Talk by **GEO. W. KABLE**
On WGY Farm Forum

"I'M Proud I Am a Farmer" may sound like a pointless subject for a talk to farm people—but it isn't.

When I was a youngster, carriage and wagon making was a trade. Today the making of carriages and wagons with motors in them is a big and complex industry. We Americans are proud of that industry. It is doing much to help win our war.

Farming a Complex Science

Farming also has always been looked upon pretty much as a trade or occupation. A lot of people still think of it that way. But farming is no longer a trade. Farming has been motorized and mechanized; has had science applied to it until it is not only one of our biggest industries, but one of the most complex; and it *is* the most fundamental. Farming is doing a lot to win this war. What is equally important, it is enabling we Americans to go to the suffering peoples of the world and win their hearts through their stomachs—a practical formula for either men or nations. I'm Proud I Am a Farmer!

Let's get down to "brass tacks" on this business of being proud of farming.

There is probably no other industry in the United States which has had more bad things said about it by the people in it than farming. They have been ably assisted by investigators and by the farm press. Proclaiming agriculture's ills and ailments has almost become a profession. The psychology is bad. Did you ever have an automobile salesman try to sell you a car by telling you what a wretched place the factory was, with unhappy workmen drudging away against terrific odds? No. They don't do it. If they did, you would buy some other car. Yet that is the way we have been selling farming to the public.

Farming in the United States is the most scientific, least laborious and has the highest standards of living of any place in the world. Each year it gets better. The end is not yet—if we can learn to be proud of being farmers.

There are problems in agriculture—plenty of them. Since we stopped making our profits on the increase in land values, the income from agriculture has not been commensurate with the investment and with the labor and risks involved. Can it be due in part to our having sold farming to the public as a "down-and-outer" instead of an "up-and-coming" industry? Farmers have been charged with producing more and more food. Farm boys have at the same time been enlisted, drafted or taken into our shipyards or other war industries at five times the farm wages. Why? In part, it is because of the system of mobilization that has put men in the armed forces and left a few on farms at $50 per month, while enticing men with no greater ability into shipyards at $250 and the privilege to strike. The other reason is that those in authority have not realized that it takes more experience and longer to train a farm hand to produce a good crop of grain or get the highest production from a cow than it takes to train a worker to put steel plates together with a welder. Also when agriculture is cut to twenty per cent of its normal machine requirements it means that someone has not been sold on the fact that tractors, plows, binders, motors, and milking machines are the *machine tools of food production,* and that farming is a mechanized industry essential to war.

The farm has always been the best place to raise children, industrial leaders and statesmen. We can be proud of that. It is a pretty good place to raise farmers if they can be sent to the city to develop a real appreciation of the farm by contact with the ills and troubles of the city.

A good farmer can be justly proud of his occupation and his life. The life of a farmer offers the maximum of independence and freedom of action. It gives almost unlimited

opportunity for study and improvement, for experimentation and for managerial ability. It has elements of self-sufficiency and security most appreciated by city folks who cannot buy their quotas of butter and meat and who are left helpless and foodless when the market crashes or business is stopped.

There are good farmers and poor farmers on small acreage and large acreage. Each has the opportunity to become a better farmer if he cares to strive. Opportunities for group action and for cooperation for the good of agriculture, the community and the nation are plentiful. Agriculture yearns for constructive leadership.

The good farmer must be something of a physicist to handle his soil properly, a practical chemist to understand the fertilization of soil and the control of diseases and insect pests, a financier to look after his credit and investments in land, stock and equipment. He cannot farm today without being a good enough engineer and mechanic to understand drainage, farm road building, and the construction and upkeep of his engines, tractors, machinery and electrical equipment. In addition he needs a good portion of managerial ability, and a lot of fortitude to take the raps of weather, politics and economic cycles. Any man who does that job well has a right to be proud.

Electricity a Morale Builder

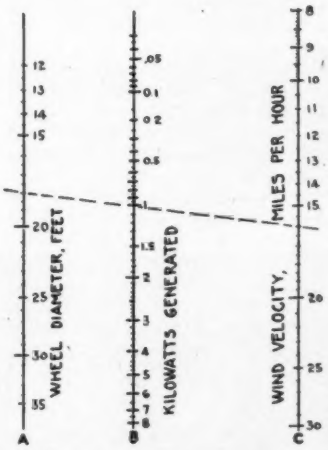
Not so many years ago farm folks generally pumped and carried water, cleaned oil lamps and lanterns, milked the hard way, put up and handled ice, turned grindstones. It was a grind. That is changing rapidly, with strong prospects of almost complete elimination after the war. Electricity is doing it. The automatic farm water system is a city waterworks on a small scale—often with better water and less cost. The automatically controlled electric brooder produces better chicks and sounder sleep for the poultryman. Who is not intrigued by the discovery of the Geneva Experiment Station that fast milking, timed electric milking, cuts the usual milking time in half and practically eliminates the necessity for stripping. Farm fruit cold storage, year-around fresh frozen foods, small electric dehydrators, electric stimulation of egg production, heaters to keep the stock tanks from freezing, electric hotbeds, electrically equipped shops are making the farm a better place to live and make a living. Electricity not only gives city comforts and industrialized production methods; it is a farm morale builder. It makes one proud.

In my way of thinking, the thing that farming needs most is morale. We need to have this Nation know and appreciate that American farming is not a "down-and-outer" shovel-and-hoe job but a vital mechanized industry and the reservoir of the Nation's strength. Instead of struggling in through the mud of pessimism, we need to march six million abreast with a smile and a song. "I'm Proud I Am a Farmer."

How to Estimate the Power of a Windmill

If you needed power someplace where electric distribution lines were not available but where there was a pretty good, steady wind, it might be interesting to know how to estimate the size of wheel necessary to generate power. Or you might like to know just how much power that windmill down in the back forty generates for pumping water.

Let us say that the wind has an average velocity of 16 miles per hour. That's a pretty good breeze.



You want to generate one kilowatt of electricity. What must be the diameter of the windmill wheel?

The accompanying chart will "figure it out" for you. Simply run a straight line through the 16 in column C and through the 1 in column B and the intersection with column A shows that a wheel 18 feet in diameter will be needed. This chart is based on actual data of windmill performance and gives the delivered power and not the theoretical power. It applies to windmills of the multi-vane type. The theoretical power of such a windmill is

$$Kw = 0.0000039 \times D^2 \times W^3$$

where D is the maximum diameter of the wheel in feet
W is the wind velocity in miles per hour

The actual power delivered is only about 19 per cent of this theoretical power. In other words, the efficiency of windmills is only about 19 per cent. New windmills of the airplane propeller type are more efficient than this but the chart gives a safe method of estimating.

Should you want the horsepower delivered instead of kilowatts, multiply the kilowatts by 1.34. The 18-foot wheel would produce 1.34 horsepower when the wind velocity was 16 miles per hour.

If you have a windmill and want to figure its power, run the straight line through the wheel diameter on line A and the wind velocity on line C and read the kilowatts generated on line B.

W. F. SCHAPHORST, M.E.

Front Cover

An appreciation of running water. Photo by Extension Service, U.S.D.A.

Farm Electric Line Built in 1898

Interesting History of Early Electrical Development in New York. Manufacturer Removed Milkers if Not Kept Clean by Farmers.

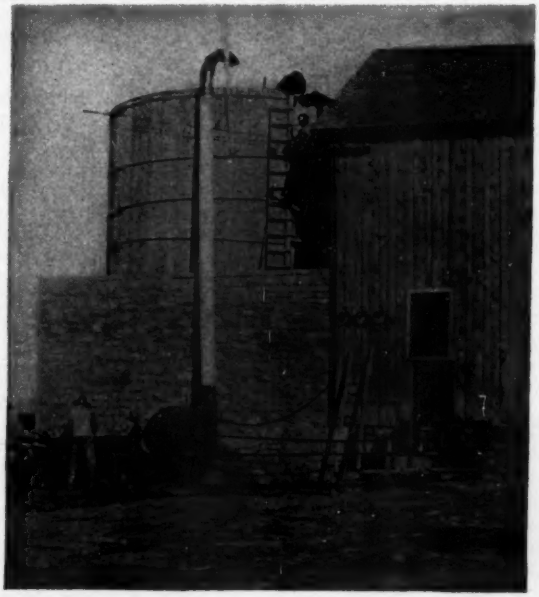
By JOHN CAIRNES

IN 1881, Guy Roosevelt Beardslee, farmer and West Point graduate, returned from fighting Indians in the West, and settled on the family farm on East Canada Creek just west of St. Johnsville, N. Y. In 1892 two young engineers and a lawyer from New York City obtained an option from Mr. Beardslee to develop the water power at the falls in the East Canada Creek, about a mile from Mr. Beardslee's residence. They were unable to secure the necessary capital for the projected enterprise, because of the financial risk, and the question as to whether transmission over even the short distance of three miles could be made successfully.

After much negotiating Mr. Beardslee developed the water power himself, purchased the generator and distribution system of Roth and Englehardt, piano manufacturers, who had a contract with the village of St. Johnsville for street lights, and built the transmission line from the falls.

On March 17, 1898, the switches were thrown at Beardslee Falls Hydro-Electric Plant to energize the line. The first power customer was the Union Knitting Company. The second outlet for power in the village was the grist mill of A. Horn's Sons. At the same time, forty-five years ago, Mr. Beardslee had service on his farm. It was served by a line a mile long, characteristics being 3 phase, 60 cycle, 2200 volts, the same as the line to St. Johnsville.

Late in 1899, Mr. Beardslee had completed negotiations with some of his farm neighbors to take service. A Mr. Sadler wanted power to operate his grist mill at Inghams Mills, 4½ miles away along the "Shell's Bush Road." This line when completed brought power within the reach of Mr. Beardslee's farm neighbors, Charles Cook, William Feeter and Jerry Timmerman. The line was energized on Thanksgiving Day in 1900. None of the farmers took service at this time. In 1901, Charles Cook took service for power and lighting. In 1904, William Feeter had the line extended to his premises for power and lighting. The same year, Jerry and William Timmerman took service, but for power only.



Barn Lantern Fades

An amusing incident is the story that after William Feeter had taken service, his neighbor, Jerry Timmerman, went to the Feeter farm to demonstrate a new barn lantern that he had recently purchased. Mr. Feeter, appreciating the enthusiasm of Mr. Timmerman over his new lantern, complimented him on his purchase and then shrewdly led him into the barn, where he turned on the lights in his horse stable. The contrast between the lantern light and the light furnished from the electric bulbs was so great that Jerry was said to have exclaimed:

"I have a notion to smash this !— * — lantern."

It was not long before Jerry installed lighting along with power.

The photograph herewith shows the first installation at the W. Timmerman farm. It was an ensilage cutter and blower driven by a 10 hp 200 volt motor. The same year, Mr. Beardslee had a milking machine and a water heater installed. The heater was of the old type grid pattern, submerged in a wooden tank.

In 1906, a milking machine was installed on the Feeter farm. The purchase of this equipment was fraught with difficulty as the elder David H. Burrell of Little Falls, N. Y., would allow the installation of this equipment only on farms where the sanitation and other methods of milk handling passed his personal scrutiny. These machines were actually removed if the purchaser did not live up to his agreement as to cleaning and proper use. (Not a bad idea for today.—EDITOR.)

"That which man changes not for the better,
Time changes for the worse."

Francis Bacon.

Electrical Housekeeping

Edited by **GAIL MEREDITH**

Dishes for Dog Days

MAYBE some families really mean it when they say, "It's too hot to eat." Mine doesn't. Come meal time, there they are, ready to draw up to the table, appetites and all. The only difference lies in the things they want to eat.

Fancy Jellied Veal

I find jellied veal loaf a good way to make cold meat popular, and to make a little go a long way. It is a fimiliar dish, but you can make it look fancy as well as taste good. if you will take a few extra minutes to put it together.

Dissolve a package of jelly powder in a cup of boiling water, unsweetened powder if you like, or lemon or lime. Add three-quarters of a cup of cold water, then pour a thin layer of

the gelatin in the bottom of any narrow dish, bread pan or refrigerator tray, and chill until it is hard.

Cover this layer with thinly sliced eggs, well seasoned with plenty of salt, a smidgin of pepper, and enough papika to give them color. Cover the egg's with a little gelatin to fix them in place and let that harden. Then pack in three cups of cooked veal, chopped or ground quite fine. Scrape a little onion juice on the meat, season it, and pour over it the rest of the gelatin.

Or Try Cheese Strata

When you have to watch your points, and want a simple hot dish that tastes good, looks good, and costs little, cheese strata is a good thing to try. If points stay as they are till you read this, a quarter of a pound of rationed cheese will take just two points to serve six.

Spread six slices of bread in the bottom of a buttered baking dish. Cover them with thin slices of American cheese, a quarter of a pound in all. Put six more slices of bread on top of the cheese, and cover with a mixture of four eggs, slightly beaten, and two and two-thirds cups of milk, seasoned with an eighth of a teaspoon of pepper and two-thirds of a teaspoon of salt. If you prepare this dish in the morning, you can cover it and put it in the refrigerator until you are ready to bake it. It will take 45 to 50 minutes in a 350-degree oven to make it a golden brown. They say it is that thorough chilling that makes the strata puff up like a souffle. Like

a souffle, it should be eaten as soon as it comes out of the oven. A vegetable salad of fresh greens, with perhaps a cup of cooked beans, a few golden carrots or slices of ripe, red tomatoes, would make a satisfying meal with only the simplest dessert. Fresh fruit and cookies for instance.

When you want to put emphasis on the end of the meal, here are two very simple, wholesome desserts you can get ready any time.

Floating Island with Oranges

Perhaps you have had Floating Island all your life, but have you ever had it made with oranges? Begin by combining three egg yolks, one-eighth of a teaspoon of salt, and three tablespoons of sugar. Gradually stir into this mixture one and a half cups of scalded milk, then half a cup of orange juice. Cook this over low heat, stirring constantly until the mixture coats a metal spoon. This will probably take about five minutes. Cool the custard quickly, then add the islands made by beating two egg whites stiff and adding a quarter of a cup of powdered sugar, and a teaspoon of vanilla extract. Drop these by spoonfuls on top of the custard and chill. When my grandmother made Floating Island, she folded the beaten egg whites into the custard while it was still hot. This submerged the islands and resulted in lovely hummocks and hollows. But grandmother never thought of serving the pudding with blunt orange sections or slices of unpeeled orange cut thin as a shadow.

There is no argument about getting the younger ones to take their quota of eggs and milk, together with a little extra orange juice when there is a dessert like this waiting in the refrigerator.

Cool Lemon Meringue

Another that is equally cool and light and refreshing is a Lemon Meringue. A friend of mine taught me how to make it by

beating together the juice and grated rind of one lemon, four rounding tablespoons of sugar, two tablespoons of water and the yolks of four eggs, then cooking it until it is stiff. I stir it carefully, and use low heat. After the mixture is cold, I fold in the stiffly beaten whites of the four eggs. Grace said this would serve five or six, but I wouldn't count on it if I were you. Fewer folks than that have made short work of it at our house.

Beating the Heat

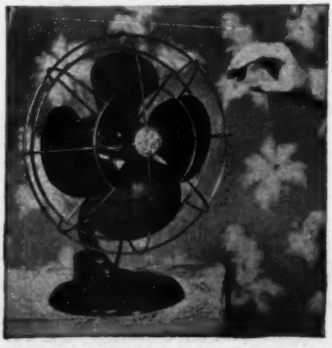
My husband says electric fans are so familiar to most of us that we are apt to take them pretty much for granted. He thinks we do not stop to consider all their possibilities and so do not always get full benefit from the fans we have.

Perhaps he is right. Anyhow I tried to pin him down to what he thought fans should be doing this August weather.

"You know that the main job of a fan is cooling for comfort," he said. "As ordinarily used fans do not make the air cooler, but they provide comfort in two distinct ways, we might almost say three. The more unusual but doubly effective way is by bringing cooler air where you are. At night it is usually cooler outside than in the house. During the day it is cooler in the basement than in the rooms above. And a good fan can put some of that cool air where you want it.

"A variation of this idea is getting rid of disagreeably warm air so it can be replaced by some that is more comfortable, clearing the kitchen of smoke and cooking smells, of the extra heat and steam at canning time, and the hot wet air on washday.

"If there just isn't any cooler or dryer air to be had," he went on, "a fan still provides comfort by making good use of the air as it is. In warm weather a person's body regulates its temperature to a great extent by perspiring and by the evaporation of perspiration. Evaporation is always a cooling process. If you wet your finger with alcohol or gasoline and let it dry, it will be cooled by the rapid evaporation. If there were no movement of air about the body, a thin layer next to the skin would soon take up all the moisture it could hold and it would be warmed to body temperature, for perfectly still air is excellent heat insulation; that is the principle of dead air spaces in walls of buildings. That is where the fan comes in; if it drives away the moist and heated air and replaces it with other air that is either cooler or dryer, it will make you feel cooler.



A fan that really dedicates itself to the family's comfort would certainly get around trying to catch up with any bit of cool air and turn it into a breeze. My husband never thought of using the fan to help dry a last minute washing, nor did he remember turning it on to dry his white shoes in a hurry. He probably never had heard of putting a breeze to work cooling a pan of jello or hardening a frosting—when we made frostings. Those are extras, a few of the odd jobs you can get a fan to do in its spare time.

Oil Your Fan Regularly

If your fan needs oil, see that it gets a little regularly. Some oscillating fans need to have the gears repacked with grease each season. (Unmedicated vaseline will do.) If your fan develops a rattle you can't account for, or if the blades do not turn freely, you'd better have a good service man find out what is wrong and let him fix it. It doesn't look as though there would be any more fans to buy till peace comes.

Refrigerators in Hot Weather

These August days frost accumulates faster on the chilling unit of the electric refrigerator. Leaving it there makes the motor work longer, and increases the cost of operating the refrigerator.

Be careful not to overload the refrigerator and stop proper air circulation.

Know what you want to put in and take out before you open the door and let in a stream of warm, moisture laden air.

Defrost when the frost is about a quarter of an inch thick. Always melt the frost away. Never, under any circumstances try to pick or pry it away from the metal with ice pick or fork. Empty the drip water at once.

Wash the inside of the refrigerator with baking soda and water. Don't forget the chilling unit. That is where the food odors collect. Teaching yourself to clean-as-you-go saves work and protects the enamel from possible discoloration or damage by acid foods. After washing, wipe the cabinet dry with a clean, soft cloth.

In Hot Water

When we built our house four years ago, we put a 50-gallon electric water heater in the basement. I wanted a ten-gallon tank directly under the sink in the kitchen, and another below the bathroom so we wouldn't heat water to stand in the long pipe line from one to the other, but the man who sold us the heater quickly changed my mind.

A Matter of Use

"You'd never be satisfied," he said. "One tired guest could pretty nearly empty a ten-gallon tank taking one bath; then no one could have hot water for shaving until that tank full of water was hot again. If you have one big tank, unusual demands will not use up your supply at either point.

9341

4281

4077

"BACK TO WORK" PATTERNS

Pattern 9341—Slim lines for the matron at home. Sizes 34 to 48. Size 36 requires 3⅝ yards 35-inch fabric.

Pattern 4281—Simple two-piece dress, ideal for back-to-school. Sizes 2 to 10. Size 6 requires 2¼ yards 35-inch fabric.

Pattern 4077—This trim jumper-and-blouse outfit for work or college. Sizes 11 to 17. Size 13 requires for jumper, 2¾ yards 39-inch fabric; blouse, 1⅞ yards 35-inch fabric.

Price of each pattern 16c (in coins). Send orders to ELECTRICITY ON THE FARM, Pattern Dept., 243 W. 17th Street, New York, N. Y. Allow plenty of time.

Besides with half inch copper tubing carrying the water, you aren't going to waste much hot water in the pipes."

We took his advice and set the single tank between the two points, but nearer the kitchen than to the bathroom, because of the more frequent demand for hot water at the faucet in the kitchen than at lavatory or tub.

Clock Turns On Electricity

There is a clock control out on the meter panel in our garage that turns the electricity for the heater on and off several times a day. It is off well before the time when everybody turns on his lights, and everybody begins to get dinner. That gives us a rate cheaper than the usual rate for the rest of the current. The electric company calls it an off-peak load.

On the heater itself there is a thermostat that controls the temperature of the water by turning on the current till the water gets hot enough, and then turning it off until more heat is needed. So the current is not on throughout the off peak periods, but only as needed to keep the water hot. Of course the thermostat cannot provide any current while the time switch has the heater disconnected from the line, but the tank is big enough so we never use up all the hot water before the next off peak period begins.

This clock controls the heating element in the bottom of the tank. In the unlikely event that we should draw all the hot water while the clock switch has the current turned off, a heating element near the top of the tank would come on and heat water for us. That heating element is connected with our regular house current, and we would pay for the current at the usual rate.

Sometimes when we pass through the garage, we hear a little ping that reminds us the current has just been turned on or off in the heater. Sometimes when I am down in the basement, I notice that my husband has piled some of his toools on the flat top of the tank, and I remind myself to find another place for them. Otherwise we never give the heater a thought. It is one piece of equipment that somebody plugs in for you, and you can forget. It takes no cafe, no thought, no operating.

In the four years we have had one in our basement, there has been an uninterrupted supply of piping hot water ready at the turn of a faucet. There is nothing quite like an electric water heater for keeping a family in hot water all the time.

Kitchenette Sauerkraut

In a recent publication on saving food put out by the College of Agriculture at the University of Wisconsin, there is a recipe for making sauerkraut which research at the university shows contains more vitamin C than sauerkraut made in a crock. The directions for making it start by telling you to test a two-quart jar for leaks. Even those with nicks, they say, can be used with lids and rubbers.

But let me quote them exactly.

"Sterilize the jar, cover, rubber and spoon to be used in making the sauerkraut. Select good firm heads of cabbage. Early cabbage is as good as the late varieties. Trim off outside leaves and remove all discolored spots. In handling keep trimmed heads clean. Rinse in running water with stem end down and drain. Shred cabbage into large pan or bowl. Add 1 teaspoon sugar and 2¼ tablespoons salt for every 3 1/3 pounds of cabbage and mix well. A two-quart jar will hold about 3 1/3 pounds of shredded cabbage. Less sugar may be used or it may be left out entirely.

"Pack tightly with spoon into jar, working quickly. Fill the jar to the very top and press until juice runs out. Seal the jar, fastening cover securely and set jar in a convenient place. It may leak a little, but air will not enter as long as the fermentation is going on actively. In about two weeks, just as soon as the bubbling has ceased, retighten the cover. Wipe the cover and sides of the jar clean and dip the top in hot paraffin to prevent the entrance of air. Keeping out all air tends to preserve more of the vitamin C and the sauerkraut is less apt to discolor.

"The sauerkraut will be ready when it has the right acidity, flavor, and change in texture to suit one's taste. This may be in two to ten weeks. Use the juice as well as the sauerkraut, as they are equally rich in vitamin C." —*University of Wisconsin Save Food Circular 334 by Mary Brady, Charlotte C. Buslaff and Gladys S. Stillman, in cooperation with Catherine J. Personius.*

Cleaning Pressure Cookers

"The proper care of a pressure cooker is highly important," says Exine Davenport, economist in home management with the Colorado State College Extension Service, in her new circular *Care of the Pressure Cooker.*

"Most pressure cookers are made either of aluminum, steel which is coated with tin, or porcelain enamel. Each material requires special treatment," says Miss Davenport.

"If your cooker is of heavy cast

OVER 50% GREATER YIELDS

● Garden watering tests by the U. S. Dept. of Agriculture and state colleges prove that farm water systems can increase garden yields 50% or more even in a period of normal rainfall. So be sure *at all times* to apply plenty of water on your garden. In dry weather run your sprinkler frequently and *long enough* to give your garden a good thorough soaking. Garden watering is one of the "extras" provided by Myers famous large capacity water systems. If you need more water lines, see the competent Myers dealer near you.

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aluminum it will be more porous than one of wrought aluminum and will pit and absorb odors if not thoroughly cleaned. Water, grease, or food left in an aluminum cooker makes it dark, rough, and pitted.

"The cooker may be scoured with fine steel wool, a very fine abrasive, or whiting mixed with vinegar. It should be rinsed and thoroughly dried after scouring. Gritty scouring powders or soda darkens and stains aluminum, and an aluminum cooker should never be scraped with a knife or steel scraper.

"The enamel and tinned cookers require careful cleaning and handling as the finish is easily scratched. Care must be used never to let these cookers boil dry. . . .

"Porcelain enamel cookers should be treated as though made of glass. Hitting, dropping, or allowing to boil dry may cause the cooker to chip. A sudden change of temperature from hot to cold will cause an enamel cooker to crack. One should avoid using steel wool or harsh abrasive powders on these cookers."

Use Hose on Farm Gardens

. . . . . (Here from page 9)

27,000 gallons to cover an acre an inch deep. More water can be pumped through a large pipe or hose with the same amount of power than through a small pipe or hose.

As has been said often in this magazine, *do not wait until the plants are wilting* for want of moisture before irrigating. It is much easier to keep plants growing than to revive them. If your soil is well drained there is not much danger from too much water in case of a rain, and it is remarkable how the vegetation responds to watering. It is not only in growth but in crispness and quality that the irrigation brings results. Gardens should, in general, have about an inch of rainfall or irrigation every seven to ten days.

Opportunity Knocked

In 1940 the county agent gave George Baker, a farmer near Akron, Colorado, a gallon of registered Beecher barley to grow for seed. Increasing his plantings each year, Baker harvested over 1,000 bu. of registered Beecher barley last year. He kept enough for his own seed and 200 bu. in reserve in case of crop failure, and sold enough to buy another quarter section of land adjoining his farm.

Experiment Stations are always developing new and better varieties of seed. If you are on your toes, you might get a gallon that would pay for a quarter section.

If you have trouble with the thermostat in your home dehydrator it may be because it is not designed to use with ordinary lamps as heaters. Ordinary Mazda lamps cause a very heavy current surge when they are first turned on which may cause the thermostat to stick eventually. Heat lamps or radiant heating elements will not do this.

If your grass shears cut hard and fail to open readily when you are using them, run a line of oil right down the cutting edge and try it again. Keep the spindle and rubbing parts of the blades oiled, of course.

Winners of the Shearing Contest sponsored by the Chicago Junior Market Lamb Show, June 18. Sitting: (left) Kenneth Ott, Winner, Ottawa, Ill., (right) Wilbur E. Dienst, Somonauk, Ill., second place. Standing: (left) Loren Scheffler, Stimman Valley, Ill., (right) Kenneth Condit, Varna, Ill. These are 4-H Club boys and Future Farmers of America who exhibited their lambs at the annual Lamb Show at the Union Stockyards in Chicago. Kenneth Ott's first experience in contests shearing was in this same show three years ago. He placed 9th in the International Contest at the Livestock Exposition a year later, and this year won his first contest. The prize was a Stewart Electric Shearmaster.

Reminders About Silo Filling

It will soon be time in some sections to start putting up corn silage. Because of labor conditions, more farmers will be figuring on how to cut down the work of filling the silo and making the motor do part of it. A few suggestions now may be timely.

Two Man Crew Procedure

Corn silage may be cut and blown into 30 or 35 foot silos with five horsepower motors with as few as two men to do the job. This small-crew method may be of special interest this year.

After morning chores are done, the two men can cut and load corn in the field. Both can come in with the load, or when things get to running smoothly, one man can continue the cutting and the other bring in the load and put it in the silo. If one man is to manage the cutter, he must use care in feeding so as not to overload or clog the machine. It will be slower than with two men but will not take twice as long.

It will take considerably longer to fill the silo with two men than with a large crew but it has some noteworthy advantages. The ensilage settles as it is put in and does not need tramping, or adding to after the silo is once filled. It saves extra labor for the women since they do not have to cook for an extra silo crew, or scare-up ration points for meat to feed them. It may have a disadvantage if the corn should be frozen in the field, except that in such a case, everybody would want the filling crew at the same time.

To fill a silo satisfactorily with a 5 hp motor, here are some things you must do.

1. Keep cutter blades sharp. Sharpen once or twice a day.

2. Keep knives set close to the strike plate—just so they do not touch.

3. Run the cutter slower than with a tractor; no faster than necessary to blow the cut corn into the silo. The power requirements go up very fast as the blower speed is increased.

4. Use as narrow and flexible a belt as possible for the power to be transmitted. A 4-inch belt with a 4-inch or larger motor pulley is wide enough. The larger the pulleys (i.e. the faster the belt runs) the more power it will transmit.

5. Feed the cutter uniformly and do not crowd it.

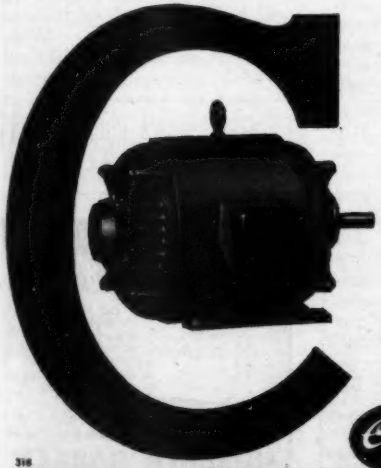
6. Be sure your voltage is up to what it should be or your motor will not develop full power. Small wires, or long leads from the transformer may cause excessive voltage drop.

7. Have your motor clean and properly oiled and in good running condition before starting.

Cow's Tail Goes to Army

The sale of tail hair from cattle is now reserved for the Army and Navy. It is used for mattresses, parachute packs and saddle pads. Because of its sponginess and low susceptibility to moisture it is ideal as a padding material.

CENTURY MOTORS Can Help Solve Your Farm Labor Problem



Century Electric Motors can speed up your farm production by doing many jobs now being done by hand. They're particularly important today when increased production is needed to help win the war, yet your normal supply of farm labor may be impossible to obtain.

Century Type RS Motors are especially adapted to farm use — they're built to start the toughest loads, yet require less starting current and produce least light flicker.

Century Type RS Motors are doing hard jobs faster and easier for thousands of progressive farmers, and they never get tired or slow down. Some have been in service for more than 40 years—ready 24 hours per day to do your bidding.

To speed up heavy chores, to make your work easier, specify Century Motors on the equipment you buy. See your equipment dealer or write direct for full information.

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Century MOTORS

316

One of the Largest Exclusive Motor and Generator Manufacturers in the World

By JEROME J. HENRY

Whiteman and Shore Take Over

Nobody will believe it but Paul Whiteman specialized in football at college and as a youngster would never practice his violin.

Now Whiteman can't be persuaded to take a summer vacation from his music, so he has taken over the network spot left vacant for the summer by Edgar Bergen and Charlie McCarthy.

Dinah Shore, the Number One swing-stress of the nation, who co-stars with Paul Whiteman over the Blue Network this summer.

The program, Paul Whiteman presents Dinah Shore, enables the little wooden man and his creator to tour more Army camps during the summer. At the same time the erstwhile hater of music practice, Whiteman, will manage a 300 acre farm in New Jersey, take care of his radio program, direct the Los Angeles Symphony orchestra in five concerts, think up new dressings for swing music, and carry on his duties as musical director of the Blue Network.

As a youngster Paul not only refused to practice his violin; he smashed a precious 60-dollar, half-size instrument against his music stand. On this occasion his stern musical father compelled his son to mow the family lawn at 25 cents a throw until the debt was paid. To this day Whitman does not share with the rest of mankind that well known ardor for the smell of new cut grass.

After the violin episode, Whiteman's father decided he would thereafter best think of his son as a great mining engineer of the future. This seemed to go against the laws of heredity, however, for Father Whiteman was supervisor of music in the Denver public schools for 50 years and Paul's mother had been a well known coloratura soprano.

Perhaps the lawn mowing incident did the trick. At any rate, not long after it, without any prodding, Paul went to work on a violin. Then a viola. After college he played in the Alfred Hertz orchestra in California and soon formed an orchestra of his own.

He took his orchestra to England and France after stirring successes in this country. His triumphs abroad were great and he played for as many as 50 parties given by the then Prince of Wales, now Duke of Windsor.

Perhaps greatest of all his achievements has been his ability to bring jazz music into the symphony hall. On one day alone he earned his title "King of Jazz" for he introduced Gershwin's "Rhapsody in Blue" to an audience in Carnegie Hall. It thereupon became his theme melody.

Service Men Will Remember

Long after the second World War is over, service men will remember Ginny Simms. She's one of their favorite hostesses.

For a long time now she has been urging, in her radio program, "Johnny Presents" that listeners take men on furlough into their homes.

"Give them a home away from home," she's been saying.

And Ginny is a gal who likes to practice what she preaches. She's been giving a birthday party a week to as many as 75 men on leave from nearby military posts.

With various volunteer associations and the USO assisting and providing the feminine atmosphere, Ginny plays hostess. She dances with the men, plays cards with them, autographs group pictures and makes them feel that being away from home isn't so bad if someone's interested.

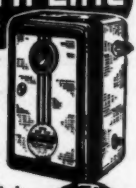
Frozen Brine—A Correction

On page 9 of the May 1943 ELECTRICITY ON THE FARM, in the article on "The Latest in Farm Freezer Design" an error was made in the proportions in making a sodium chloride brine solution that will freeze. The proportions should be 23.3 pounds of salt and 76.7 pounds of water. When frozen, this eutectic ice will thaw at —6° F.

The *Diesel-electric* locomotives can start a long train in half the time a steam locomotive requires.

One dozen eggs out of each 7½ dozen produced in the United States in 1942 was dried to supply lend-lease requirements.

Get A Gardner Hi-Line Controller



Save time, get set for more milk, beef or pork production with a Gardner hi-shock hi-line controller — the best engineered electric fence unit. Thousands are in nation-wide use, many have given six years of successful service. Ask your dealer today, or write direct for free folder.

Gardner Mfg. Co.
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"Keep 'em Frying"

If you are using a Monarch Range write for free booklet entitled "How to Care for your Monarch Range"—mentioning the kind of fuel you use.

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MONARCH RANGES are built to last

Questions and Answers

Lifting Magnet

▶ **Question:** *Could I make an electro-magnet out of 110 volt, 60 cycle current? I would want one to lift about five to ten pounds of metal.*
R. H., Ohio.

▶ **Answer:** Lifting magnets are operated with direct current. Alternating current is not satisfactory.

Oven Canning

▶ **Answer:** *Please send me information on canning in the electric oven.*
Mrs. C. J. G., O.

▶ **Answer:** We prefer to adhere to the recommendations of the Department of Agriculture about the canning of foods. Their recommendations are that the oven method or water bath method may be used for acid fruits and vegetables but that nothing but steam pressure cookers should be used in canning non-acid vegetables such as beans, peas, corn and most vegetables, in fact, except tomatoes. The reason is, that there are certain spoilage organisms and a botulism spore organism in non-acid vegetables which is not killed by temperatures of 212°. They require the higher temperatures of the pressure cooker in order to be safe.

In many states, particularly in the Middle West, there is very little difficulty with botulism and spoiling. It may be that your own State Experiment Station recommends the use of oven canning for fruits and vegetables. In order to be sure, I would recommend that you write to your Agricultural Experiment Station for their recommendation.

Power and Pulleys for Hand Pump

▶ **Question:** *Can you give me the size in hp for an electric motor needed to drive a five-inch hand pump, with two-inch suction and discharge, five inch stroke, thirty strokes per minute?*
A. H., New York

▶ **Answer:** Assuming your pump to be single acting, it will have a capacity of approximately 2 gallons per minute and can be operated by a ¼ hp motor with a total lift of anything up to about 80 ft. If double acting, it would do for lifts up to about 50 ft.

If you use a standard 1725 r.p.m. motor without a speed reducer, you need to have a pulley on the pump 58 times the diameter of the pulley on the motor. This is obviously impractical since your motor pulley should not be less than 2 in. in diameter. I would suggest using a jack shaft with a 2 in. pulley on the motor and 16 in. pulley on the jack shaft, then use a 2½ in. pulley on the other end of the jack shaft driving an 18 in. pulley on the pump. This would give you just about thirty strokes per minute.

How Much Electricity Does an Underloaded Motor Use?

▶ **Question:** *We have a 7½ hp motor that we use for pumping water, operating a pump that requires only a 5 hp motor. Does this motor, when not operating at capacity, use as much electricity as it would at full load?* L. S., N. J.

▶ **Answer:** A 7½ hp motor will use very little, if any more, current in pulling a 5 hp load than would a 5 hp motor. Generally speaking a motor uses only the amount of current necessary to pull the load regardless of its horsepower rating.

Type Welder for Farm

▶ **Question:** *Are the A. C. arc welders that operate off the line satisfactory for most farm repairwork? Is there any difference if they are operated on either 110 or 220 volts? What size wiring and transformer would be required for a welder about 10 to 125 amp. output? It would be located about 100 ft. from entrance. Would they have to be larger than the present sizes that take care of a 1 hp motor, other smaller motors, and lights? Can cutting be done with one of the sizes that I mentioned above?* H. L. P., Ind.

▶ **Answer:** Alternating current arc welders of the transformer type are quite satisfactory for farm repair jobs. It is a little more difficult to strike an alternating current arc than a direct current arc and the transformer type will effect the line voltage more than a motor generator unit.

If you are going to use a welder with a maximum capacity of 125 amperes, it should be used on a 230 volt circuit in order to save wire and reduce voltage fluctuations when striking the arc.

For a welder of 125 ampere capacity, 100 feet from the transfer you would need No. 10 wire on 220 or

More Water at Less Cost With F & W Pumps

Efficiency and dependable operation are the vital qualities of F & W centrifugal pumps which mean so much to you during the war emergency, especially. Simplicity of design, with fewer moving parts, assure unfailing service day in, day out. Compact, close-coupled units have large capacity. Models for all needs —for shallow wells— for deep wells.

MORE FOOD A VITAL NEED

Although the number we can manufacture is necessarily limited, farmers qualify under priority rules to obtain F & W systems, because of the vital importance of water in the food producing program. See your dealer promptly or write us for further information.

FLINT & WALLING MFG. CO., INC.

805 OAK ST., KENDALLVILLE, IND.

230 volts and No. 4 wire on 115 volts. The transformer size should be not less than 3 KVA. The wiring and transformer for your 1 hp motor and other small appliances would not be adequate. The welder load would be about the equivalent of a 5 hp motor.

The electric arc is not a good cutting tool. It can be used but it makes a ragged cut. The oxy-acetylene torch makes a much better cutting outfit.

Homemade Fencer Interferes with Radio

▶ **Question:** *Is there any way to eliminate radio interference from an electric fencer that has been made by using a bell transformer with an oil condenser hooked to a vibrating coil on 110 a.c. current? When hooked up to the fence the coil vibrations are picked up by the radio but when operated without being hooked to the fence causes no interference at all. Would be pleased if you could help me.* B. C. L., Ind.

▶ **Answer:** We always wish to be helpful to our readers but in the case of homemade electric fence, we draw the line. Our reason is that some people and much livestock have been killed by homemade electric fencing equipment. Your unit might work effectively but again, the insulation in your transformer might break down or be damaged by lightning so that the fence would be carrying 110 volts direct from the line which would be exceedingly dangerous. We think we are giving our readers the best service we can if we tell them nothing about homemade electric fence controllers except to have nothing to do with them.

Burglar Alarms

▶ **Question:** *Please send me the names of manufacturers of burglar alarms for guarding poultry fence and gates. Please send information about the electric eyes and the advisability of their use.*

R. S. C., Conn.

▶ **Answer:** It will probably be difficult for you to obtain photo electric alarms during the war period. These alarm systems are effective where you can shine a beam of light across the opening through which a marauder would pass. The equipment itself costs more and it costs more to operate than the older type of burglar alarms. Photo electric alarms are manufactured by Teletouch Industries, 37 West 54th Street, New York, A. C. Rahberger Company, 2134 N. Magnolia Avenue, Chicago, Ill, and Worner Products Corp., 1019 West Lake Street, Chicago, Ill.

The other type of burglar alarm is one in which an alarm bell rings when a circuit is broken. The circuits are made of fine wire which extend across doors, windows and other openings and are held by clips. With a closed circuit relay, a bell in the house or elsewhere connected to batteries will ring whenever the circuit is broken or if the electric light wires are cut. Such alarms are sold by the Lyon Rural Electric Co., 2075 Moore Street, San Diego, Calif., and by Patrick & Wilkins of Philadelphia, Pa.

120 V. Lighting Plant and A.C. Appliances

▶ **Question:** *Due to the war the Electric Company is unable to furnish an electric line to our farm. We are moving from town to the farm and we have many appliances and it seems almost impossible to do without them. Would we have to make any changes in these appliances to use an electric plant or is this electricity the same as we have in the city.*

Please send names of places where I might be able to buy a 120 v. plant.

E. S. R., New York

▶ **Answer:** Recent rulings of the War Production Board make it possible for Power Companies to build short extensions if the power lines run close to your farm. If you have not taken the matter up with the Power Company within the past few months, it might pay you to see them again.

Electric light plants for civilian use are not being manufactured for the duration of the war. The Delco Appliance Division of General Motors Sales Corp., Rochester, N. Y., and the Kohler Company, Kohler, Wis., have built 120 volt plants and might be able to tell you where you could buy a reconditioned unit.

The heating appliances and lighting equipment you have used on your city electric service could be used satisfactorily on a 120 volt farm lighting plant. The vaccum cleaner would probably be suitable for use as most of them have Universal motors. Other appliances, however, using motors such as your refrigerator, could not be used on the direct current lighting circuit without changing the motors from alternating current to direct current type.

CLASSIFIED ADVERTISING

SAVE LABOR, TIME AND CHICKS WITH THE LYON LINE. Send for catalog showing *electric heaters*, thermostats and other repair parts for brooders, incubators and dehydrators. Remember—the Lyon Line is backed by unequalized experience in the specialized production of *electric* poultry supplies. It's at your service whenever possible. LYON RURAL ELECTRIC CO., Dept. EF, Greensboro, N. C., San Diego, Calif.

New Publications

(*Publications are obtainable from the addresses given in the description. Some states make small charges for bulletins sent outside the state.*)

• A PRACTICAL GUIDE TO SUCCESSFUL FARMING. By Wallace S. Moreland and a staff of 36 experts from N. J. State College of Agriculture. 1001 pages, illus., tan cloth binding, Garden City Pub. Co., 14 W. 49th St., New York City. Price $3.95. An unusual book. 37 chapters on all phases of farming including reasons for success and failure, soil, seeds, plant growth, pests, nutrition, animal breeding, disease control, stuctures and equipment, management, poultry, dairy, vegetables, flowers, grain crops, pastures, tree fruits, small fruits, bees, potatoes, hogs, sheep, goats, beef, marketing, farm credit, farm organizations, and more. Written in elementary style so a city man can understand but containing fundamentals and many details of farm operations—and it is interesting reading.

• BACKYARD POULTRY KEEPING. A little clothbound book of 150 pages, illus. By J. C. Taylor. Rutgers University Press, New Brunswick, N. J. $1.50. Elementary but specific and quite complete. Fundamentals rather than frills. Breeds, housing, incubation, brooding, feeds, health, care and management, caponizing, and a chapter on rabbits.

• HOME CANNING. 32 pp., illus. On selecting, preparing and canning, dehydrating, brining and freezing fruits, berries, vegetables, meats and fowl. With charts, tables and an index. From Hotpoint Dealers or Edison General Electric Appliance Co., 5600 W. Taylor St., Chicago.

• REPAIR YOUR ELECTRIC CORDS. A series of 6 charts 14-in. x 20-in. with excellent illustrations and instructions for classroom or farm and home club teaching. Price 30c for set.

• CARE OF HOME EQUIPMENT. Ten charts 14 x 20 on cleaning and caring for gas and electric ranges, refrigerators, vacuum cleaners, washing machines, electric irons and sewing machines. Price 50 cents for set of 10.

Last two items prepared by Bur. Human Nutrition and Home Economics, USDA. For sale by Supt. of Documents, Washington, D. C.

Changes in Farm Equipment and Service Situation

Note. Other releases on this same subject were printed in ELECTRICITY ON THE FARM in April on page 3 and in May on page 27. Following are the more recent rulings.

ELECTRIC CONNECTIONS

WPB Utilities Order U-1-c has been amended to permit farm extensions over 5,000 feet in length where food production warrants. Other conditions are the same, namely

Length of line permitted, 100 feet per animal unit.

Electrically operated FARM equipment must be available or obtainable.

You must have at least five animal units.

Extensions must be built of steel wire conductors or Copperweld steel rejected by the armed services.

You must have a certification from your County War Board that you are eligible.

FARM WIRING

If your farm has been approved by your County USDA War Board for a new line extension, you are permitted to purchase up to 75 pounds of wire and wiring materials from your local dealer for making connections by merely signing a prescribed certificate telling what the wire is to be used for.

If your farm is not newly connected but you need wire to connect some piece of productive equipment like a milker or brooder you can secure up to 75 feet of wire on certificate from your dealer as above. Until this ruling is changed, you will need to fill out a PD-1A form and get a priority from WPB for any larger amount of wire needed.

ELECTRIC APPLIANCES

Order L-65 was completely revamped on June 17. Since May 31, 1942, the production of all electric appliances had been completely cut off except for certain military or preferred requirements. The new ruling permits the manufacture of not more than 10 per cent of 1940 production of commercial and heavy duty broilers, food choppers, food mixers, food grinders, food servers, food slicers, fry kettles, griddles, hotplates, juicers, ovens, ranges, toasters, urns and vegetable peelers. These are not for home use, however, but for hospitals, war industry cafeterias and training schools serving military personnel.

There are also some further restrictions on the manufacture of repair parts. One requirement is that manufacturers and distributors are not permitted to transfer a repair part unless a similar used part is given in exchange.

MOTORS

It is reported that motors of 1 hp and above are available in most sections of the country. They are obtainable by filling out a PD-1A blank and obtaining a priority from WPB.

Fractional horsepower motors were placed under a special directive on June 22nd requiring certain manufacturers to set aside 50 per cent of their motor production under 1 hp to supply dealers to sell to farmers on certificates of farm use, regardless of all other priorities except AAA. This is to be in effect until September when it is expected the new priorities program will make more available.

FARM MACHINERY, EQUIPMENT AND REPAIRS

On July 1, WPB Order L-257 superceded Order L-170. The main features and differences in the new order are

A considerable increase in quotas allotted to manufacturers.

Elimination of "concentration" features—the Class "A," "B" and "C" manufacturers—which will ease one of last year's troublesome problems of distribution.

L-257 was set up early enough, and FOR A FULL YEAR'S MATERIALS, so that it should be possible to produce the machines in time to use them. L-170 provided materials on a quarterly basis. Producers are given an AA-2 rating, but delivery schedules when established will be protected regardless of other preference ratings.

Quotas are flexible between items so a manufacturer can make new type machines if they answer the purpose better, or may use his materials for the equipment which proves to be most needed.

While the new quotas under L-257 went into effect July 1, the allotments under L-170, if not all manufactured, may be produced at any time within the year IN ADDITION to allotments under L-257.

There are no restrictions on the amounts of repair parts a manufacturer may make, except that he must arrange for materials in advance and in line with his past production.

"Small producers" whose total business did not exceed $100,000 in 1941 are permitted to use a quota of 100 per cent for any item which they manufacture.

Following are some quotas which have been assigned under L-257. They are based on percentage of net shipping weight of each item produced in 1940 or 1941, whichever was the larger.

	Per Cent
Ensilage cutters	69
Feed cutters	80
Feed grinders	58
Feed Mixers	58
Grain cleaners and graders	68
Portable elevators	100
Grain blowers	118
Forage blowers	150
Domestic Water Systems	
Deep well (recip.)	55
Jet pumps	70
Shallow well (250-499 gal.)	66
Shallow well (over 500 gal.)	56
Power pumps	55
Pump jacks	67
Centrifugal (irrig.) pumps	64
Portable pipe and sprinklers	70
Milking machines	60
Cream separators (250 lbs.)	35
Cream separators (251-800)	37
Cream separators (801-1500)	23
Milk coolers	84
Churns	70
Sterilizing tanks	70
Dairy water heaters	60
Ventilating equipment	30
Hay hoists	60
Incubators (up to 1,000 eggs)	51
Incubators (over 1000 eggs)	75
Electric brooders (over 100 chicks)	100
Battery brooders (4 deck)	70
Battery brooders (5 deck)	85
Poultry fountain heaters	75
Egg graders	100
Egg candlers	100
Poultry house ventilators	40
Light controls	75
Sheep shears	100
Cattle clippers	50
Electric fence controllers	100
Wood sawing machines	56
Wind driven electric generators	55

Our War Plants

STILL NEED STEEL SCRAP

Our major military offensive is still to come

More steel has been allotted for new farm machinery and repair parts

The coal disputes have handicapped production

Turn In Any Scrap Steel That Is Not Working

RUNNING WATER *FOR GREATER PRODUCTION*

MORE MILK
MORE EGGS
MORE MEAT

"FOOD for Victory" is the farmer's job. The present situation demands that you make fullest possible use of all production aids.

Running water is a real production booster. Give beef cattle or milk cows plenty of fresh water and they will produce more—cows require 25 gallons a day, each. Eggs are ⅔ water — it takes 2½ gallons a day for each hundred chickens. A hog needs 2 gallons a day.

So keep your electric pump in good condition and use it for all possible services. If you don't own an automatic water system see a reliable pump dealer. He can tell you what you have to do to get this mighty important food producing machine.

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